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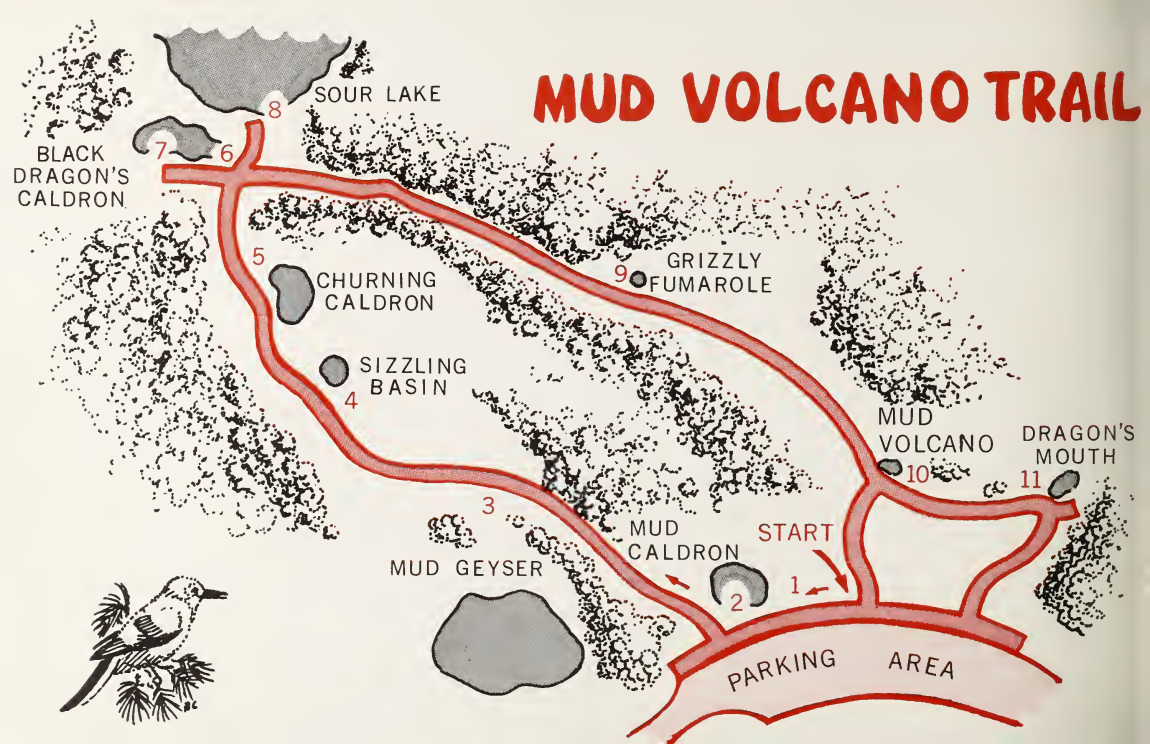
MUD VOLCANO TRAIL
SOUR LAKE
BLACK DRAGON'S CALDRON
CHURNING CALDRON
SIZZLING BASIN
GRIZZLY FUMAROLE
MUD VOLCANO
DRAGON'S MOUTH
MUD CALDRON
START
MUD GEYSER
PARKING AREA
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Turbulent pools of hot muddy water, hissing steam, strange odors, a bleak and barren landscape — this booklet will help you to better understand these curious features.

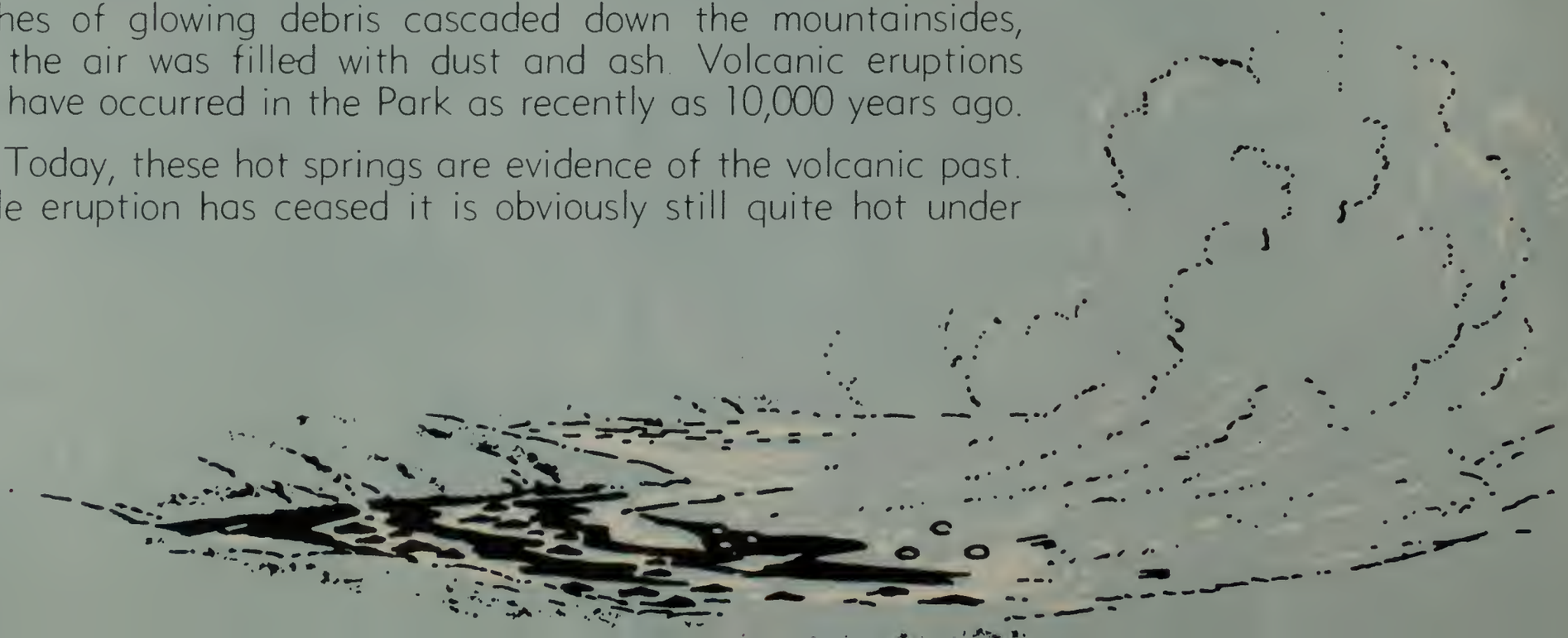
The numbered statements which follow refer to locations along the trail marked by numbered signs. To follow the trip outlined here will take you about ½ hour and will require a walk of 2/3 of a mile.

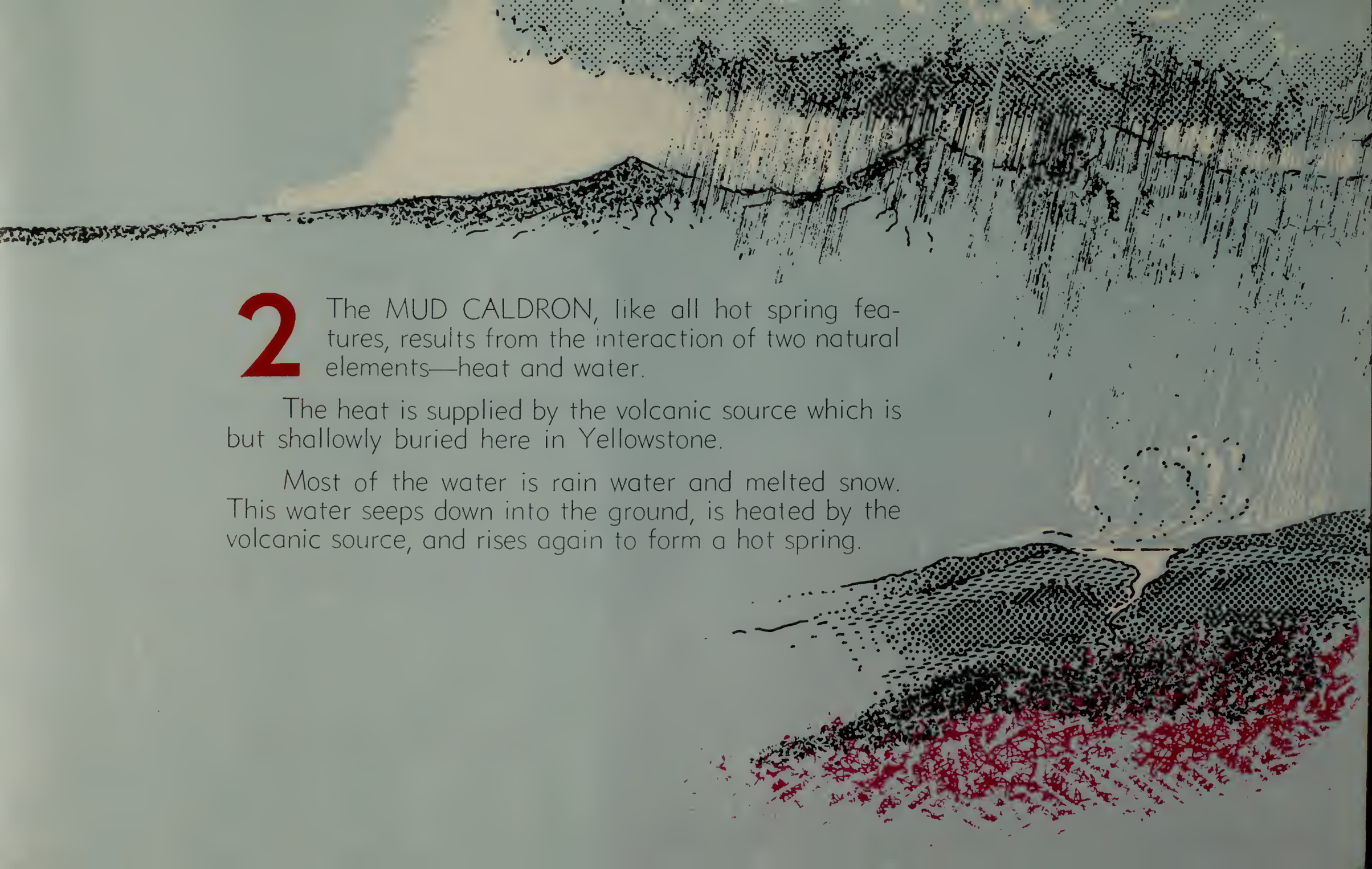
Remember! Hot spring areas are dangerous. Protect yourself and the delicate features by staying on the trail.

LPB

1 Beneath your feet lies a vast reservoir of heat. It is a remnant of the Park's fiery past. Yellowstone was once the scene of volcanic holocaust. For years great fissures in the earth spewed forth tremendous quantities of molten rock. Avalanches of glowing debris cascaded down the mountainsides, and the air was filled with dust and ash. Volcanic eruptions may have occurred in the Park as recently as 10,000 years ago.

Today, these hot springs are evidence of the volcanic past. While eruption has ceased it is obviously still quite hot under foot.



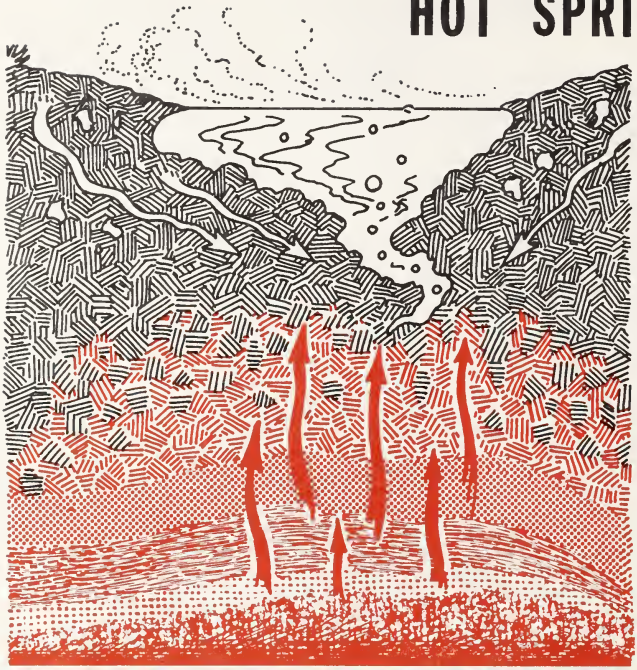


2 The MUD CALDRON, like all hot spring features, results from the interaction of two natural elements—heat and water.

The heat is supplied by the volcanic source which is but shallowly buried here in Yellowstone.

Most of the water is rain water and melted snow. This water seeps down into the ground, is heated by the volcanic source, and rises again to form a hot spring.

HOT SPRING



Surface water seeps into ground

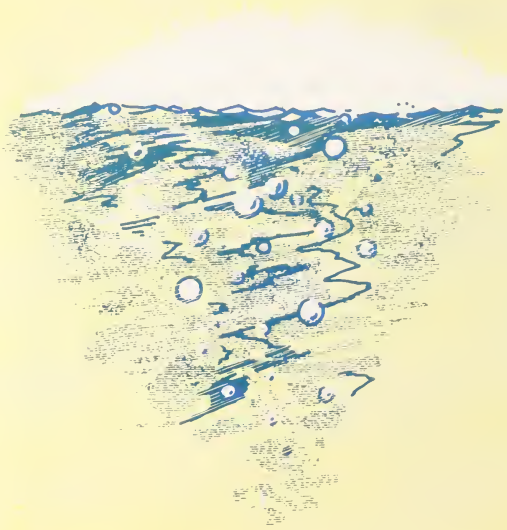
Water absorbs heat from gases

Rising volcanic gases

Volcanic source

3 How is the water of a hot spring heated? The only sure way to find this out would be to get a look at the "roots" of such a spring. But as you look down to the MUD GEYSER below you, it takes little imagination to realize what an impossible task this would be. As a result, we can only guess at what the actual mechanism of hot spring development may be.

Geologists feel that the down-seeping waters do not actually contact molten rock. They believe, rather, that the volcanic source gives off large quantities of steam and other gases. When they mix with the descending water, heat is transferred from gas to water.



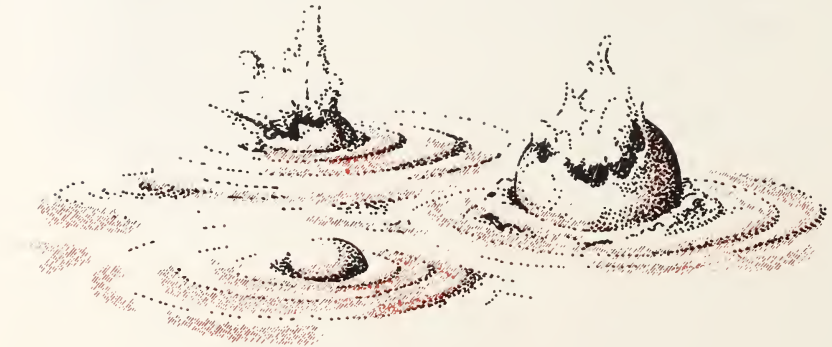
4 You have probably already noticed the odor of "rotten egg gas". This is the smell of hydrogen sulphide, one of the gases which arises from these hot springs.

The pools before you are called SIZZLING BASIN. The water seems to be boiling, but it is not. The bubbling action is due to gas bubbles rising through the spring and bursting at its surface. These gases are, at least in part, those that originated in the buried volcanic source.

5 Here at CHURNING CALDRON the action of gases is again clearly seen. The temperature of this pool is well below boiling. The churning action results from a mixture of gases being released into the pool.

The most important volcanic gases found in the Park's hot springs are STEAM, CARBON DIOXIDE, HYDROGEN SULPHIDE, and HYDROGEN. While steam is the most abundant of these gases, it is largely condensed as it mixes with ground water, and at the surface of the pool the other gases may appear more prominently. The foam and bubbles floating on the surface are carbon dioxide.

6 The cracks and fissures through which the volcanic gases rise and through which the surface waters descend are forever changing. This spectacular spring did not exist prior to 1948. In the spring of that year, subsurface changes occurred and the BLACK DRAGON'S CALDRON burst into existence. It has since slowly shifted some 200 feet from the point at which it first formed. Prior to the formation of this seething mass of black mud, the spring which feeds nearby Sour Lake was much more active than at present. We can speculate that underground changes diverted heat energy from Sour Lake to form Black Dragon's Caldron.

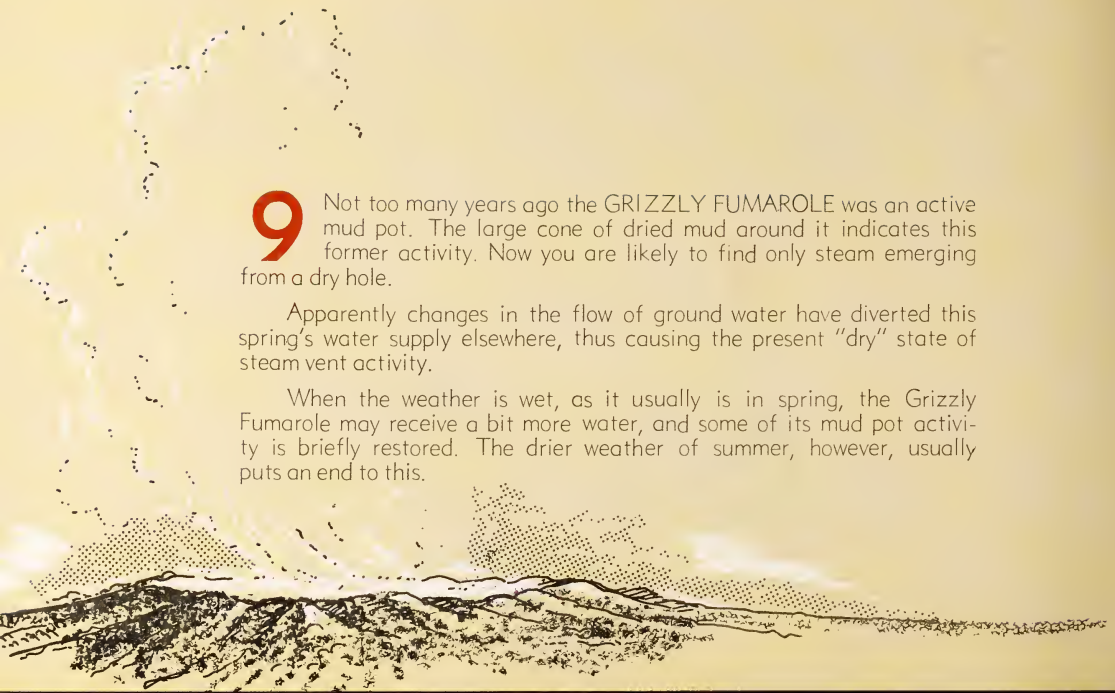


7 The water supply of the Black Dragon's Caldron is limited. You can see that it produces little or no runoff. The emerging gases churn the water over and over leaving it thick and muddy. The mud confines the rising gas to large bubbles which, as they burst at the surface, produce the explosions of mud which give this spring so gruesome an aspect.

8 SOUR LAKE is named because of its acid water. The acid gives the water a sour taste and makes it slick to the touch. Hydrogen sulphide rising from the volcanic depths reacts with oxygen in the descending ground water to form the acid.

The dead trees within the lake indicate that it is now more extensive than it once was. Notice the dark acid burns on the remaining stumps.

The fallen trees adjacent to the walk were killed by an overflow in earlier years. Sour Lake and Black Dragon's Caldron testify to the highly unstable nature of the Park's hot spring features.

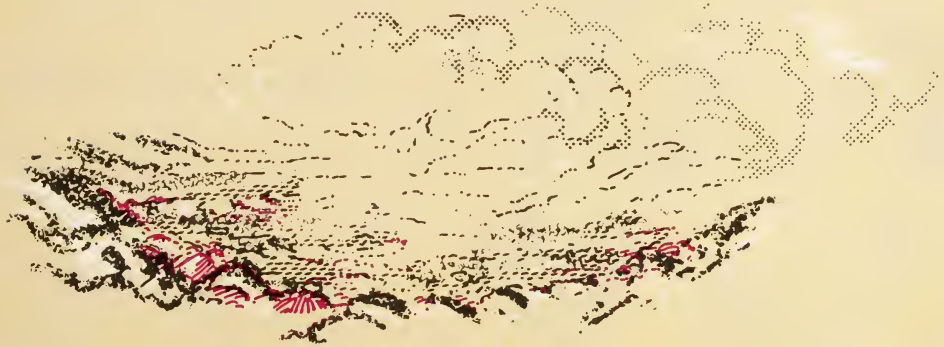


9 Not too many years ago the GRIZZLY FUMAROLE was an active mud pot. The large cone of dried mud around it indicates this former activity. Now you are likely to find only steam emerging from a dry hole.

Apparently changes in the flow of ground water have diverted this spring's water supply elsewhere, thus causing the present "dry" state of steam vent activity.

When the weather is wet, as it usually is in spring, the Grizzly Fumarole may receive a bit more water, and some of its mud pot activity is briefly restored. The drier weather of summer, however, usually puts an end to this.

10 The water of the MUD VOLCANO contains an abundance of gray mud. This mud is of the spring's own making. The highly acid water leaches materials from the surrounding lava rock. This leaves behind a clay-like residue. Mixed with the agitated water of the spring, it is this residue which gives the Mud Volcano is muddy consistency and color.



11 The rhythmic belching of steam and the flashing tongue of water as it strikes out from the cavernous opening have given this spring its name —the DRAGON'S MOUTH. The surging action gives the impression of a great discharge of water, but a glance at the runoff channel shows that this is not so. Here, too, the water is used over and over.

The nature of this pool is violent. Its hot (180° + F.) waters, its violent seething, the rumblings from its inner caverns — all create the impression of power. And this is certainly a valid impression.

The Dragon's Mouth—as are all of Yellowstone's hot springs and geysers —is powered by a source of volcanic heat buried beneath your feet. It has given rise to great volcanic outbursts in the past.

Does the Dragon's Mouth represent the dying stages of this period of violence . . . or are the great earth forces simply resting . . . only time will tell.

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